In the Claims:

Following is a complete listing of the claims pending in the application, as amended:

1 – 48. (Cancelled)

49. (Original) A reactor for electrochemically processing a microelectronic workpiece comprising:

a fluid chamber configured to contain an electrochemical processing fluid;

a plurality of electrodes in the fluid chamber;

a workpiece holder positionable to hold the microelectronic workpiece in the fluid chamber;

an electrical power supply connected to the surface of the microelectronic workpiece and to the plurality of electrodes, at least two of the plurality of electrodes being independently connected to the electrical power supply to facilitate independent supply of power thereto; and

a control system connected to the electrical power supply to control at least one electrical power parameter respectively associated with each of the independently connected electrodes, the control system setting the at least one electrical power parameter for a given one of the independently connected electrodes based on one or more inputted parameters and a plurality of predetermined sensitivity values, the predetermined sensitivity values corresponding to process perturbations resulting from perturbations of the electrical power parameter for the given one of the independently connected electrodes.

50. (Original) The reactor of claim 49 wherein the at least one electrical parameter is electrical current.

51. (Original) The reactor of claim 49 wherein the sensitivity values are logically arranged within the control system as one or more Jacobian matrices.

52. (Original) The reactor of claim 49 wherein the at least one user input parameter comprises the thickness of a film that is to be electrochemically deposited on the at least one surface of the microelectronic workpiece.

53. (Original) The reactor of claim 49 wherein the independently connected electrodes are arranged concentrically with respect to one another.

54. (Original) The reactor of claim 49 wherein the independently connected electrodes are disposed at the same effective distance from the microelectronic workpiece.

55. (Original) The reactor of claim 54 wherein the independently connected electrodes are arranged concentrically with respect to one another.

56. (Original) The reactor of claim 49 wherein at least two of the independently connected electrodes are disposed at different effective distances from the surface of the microelectronic workpiece.

57. (Original) The reactor of claim 56 wherein the independently connected electrodes are arranged concentrically with respect to one another.

58. (Original) The reactor of claim 57 wherein the independently connected electrodes are arranged at increasing distances from the microelectronic workpiece from an outermost one of the plurality of concentric anodes to an innermost one of the independently connected electrodes.

59. (Original) The reactor of claim 49 wherein one or more of the independently connected electrodes is a virtual electrode.

60 - 73. (Cancelled)

74. (Original) A reactor for electrochemically processing a microelectronic workpiece comprising:

a fluid chamber configured to contain an electrochemical processing fluid;

a plurality of electrodes in the fluid chamber;

a workpiece holder positionable to hold the microelectronic workpiece in the fluid chamber; and

an electrical power supply connected to the surface of the microelectronic workpiece and to the plurality of electrodes, at least two of the plurality of electrodes being independently connected to the electrical power supply to facilitate independent supply of power thereto, the power supply configured to provide power to each independently connected electrode in accordance with an electrical power parameter provided for the independently connected electrode, each electrical power parameter being based on one or more inputted parameters and a plurality of predetermined sensitivity values, the predetermined sensitivity values corresponding to process perturbations resulting from perturbations of the electrical power parameter for the given one of the independently connected electrodes.

75. (Original) The reactor of claim 74 wherein each electrical power parameter is a current level.

76. (Original) The reactor of claim 74, further comprising an electrical power parameter selection subsystem that selects the electrical power parameter corresponding to each independently connected electrode.

77. (Original) An method for electroplating a selected surface using a plurality of electrodes, comprising:

obtaining a current specification set comprised of a plurality of current levels each specified for a particular one of the plurality of electrodes, the current levels of the current specification set comprising a modification of current levels of a distinguished current specification set in order to improve results produced by electroplating in accordance with the distinguished current specification set; and

for each electrode, delivering the current level specified for the electrode by the current specification set to the electrode in order to electroplate the selected surface.

78. (Original) The method of claim 77 wherein the current specification set is obtained by receiving it via an interface.

79. (Original) The method of claim 78 wherein the interface is a user interface.

80. (Original) The method of claim 78 wherein the interface is a removable media drive.

81. (Original) The method of claim 78 wherein the interface is a network connection.

82. (Original) The method of claim 77 wherein the current specification set is obtained by modifying the distinguished current specification set.

83. (Original) A method for processing a microelectronic workpiece, comprising:

(a) applying a seed layer to the workpiece using a physical vapor deposition process;

(b) measuring non-uniformity of the applied seed layer using a metrology device;

(c) correcting the measured non-uniformity of the applied seed layer in an multiple-electrode reactor whose electrodes are operated in accordance with electrical parameters determined based on the measured non-uniformity of the applied seed layer and characteristics of the multiple-electrode reactor.

84. (Original) The method of claim 83, further comprising, after (c):

(d) subjecting the workpiece to an electroless ion plating process in order to enhance the seed layer.

85. (Original) The method of claim 84, further comprising, after (d):

measuring the thickness of the enhanced seed layer using a metrology device; and

depositing a bulk metal layer atop the seed layer in an multiple-electrode reactor whose electrodes are operated in accordance with electrical parameters determined based on the measured thickness of the enhanced seed layer and characteristics of the multiple-electrode reactor.

86. (Original) A method for processing microelectronic workpieces, comprising:

(a) applying a seed layer to a first workpiece using a first physical vapor deposition tool;

(b) applying a seed layer to a second workpiece using a second physical vapor deposition tool;

(c) measuring non-uniformity of the seed layer applied to the first workpiece using a metrology device;

(d) measuring non-uniformity of the seed layer applied to the second workpiece using a metrology device;

(e) correcting the measured non-uniformity of the seed layer applied to the first workpiece in a first multiple-electrode reactor whose electrodes are operated in accordance with electrical parameters determined based on the measured non-uniformity of the seed layer applied to the first workpiece and characteristics of the first multiple-electrode reactor

(f) correcting the measured non-uniformity of the seed layer applied to the second workpiece in a second multiple-electrode reactor whose electrodes are operated in accordance with electrical parameters determined based on the measured non-uniformity of the seed layer applied to the second workpiece and characteristics of the second multiple-electrode reactor.

87. (Original) The method of claim 86, further comprising, after (f):

measuring the thickness of the corrected seed layer of the first workpiece using a metrology device;

depositing a bulk metal layer atop the seed layer of the first workpiece in a third multiple-electrode reactor whose electrodes are operated in accordance with electrical parameters determined based on the measured thickness of the corrected seed layer of the first workpiece and characteristics of the third multiple-electrode reactor;

measuring the thickness of the corrected seed layer of the second workpiece using a metrology device;

depositing a bulk metal layer atop the seed layer of the second workpiece in a third multiple-electrode reactor whose electrodes are operated in accordance with electrical parameters determined based on the measured thickness of the corrected seed layer of the second workpiece and characteristics of the third multiple-electrode reactor.

88 - 100. (Cancelled)